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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/636,134	08/10/2000	Mehdi Balooch	IL-9940B	6671

7590

02/25/2002

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EXAMINER

BUEKER, RICHARD R

ART UNIT

PAPER NUMBER

1763

8

DATE MAILED: 02/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/636,134

Applicant(s)

BALOOCH ET AL.

Examiner

Richard Bueker

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Nov. 13, 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- ☐ Interview Summary (PTO-413) Paper No(s). _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

Art Unit: 1763

Claim 26 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not provide any enabling disclosure for laser ablation of a target containing a material having a work function of approximately 1 eV, wherein the target is composed of barium metal oxide.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19, 21, 22, 24-27, 29 and 30 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Russo in view of Chrisey and Gartner I (5,866,975) and in further view of any one of Face, Koga, Gartner II (5,254,832) or Mehrotra. Russo illustrates a conventional laser ablation apparatus wherein a vacuum chamber having a window is provided with an excimer laser, for ablating a barium metal oxide target to deposit a coating on a substrate. Chrisey further describes conventional laser ablation apparatus of the type used by Russo. Chrisey shows that it was conventional in the prior art to rotate the substrate and to control the substrate temperature. Each of Face, Koga, Gartner I, Gartner II and Mehrotra suggests a laser ablation process for depositing a coating by ablating a target containing a material having a low work function of approximately 1 eV. It would have been obvious to use such a target in the conventional laser ablation apparatus of the type disclosed by Russo and Chrisey.

Art Unit: 1763

Also, Gartner I teaches (col. 6, lines 59-61) that it is desirable to use an excimer laser (ultraviolet), as now claimed, as a substitute for a CO₂ laser (infrared) for deposition of low work function coatings. It would have been prima facie obvious to use an excimer laser in the laser ablation processes suggested by Face, Koga, Gartner II or Mehrotra, in view of the teachings of Russo and Gartner I regarding the use of excimer lasers in laser ablation.

Face teaches (see col. 6, lines 58-64) the step of depositing BaO, CaO and CuO which are all included on the list of low work function materials by Fomenko et al. (cited at page 2, lines 1-4 of applicants' specification). Face teaches that these materials are deposited from a target by laser ablation or sputtering. Face states that "(t)ypically, the sources of involatile oxides are targets that contain those oxides". At col. 7, lines 29-31, Face teaches that his targets contain BaO, CaO and CuO. It is noted that the limitation of claim 19, lines 1-2 of "apparatus for depositing a material having a low work function" is a recitation of intended use that does not so limit the present apparatus claims. Thus, while the apparatus claims are limited by the recitation of a particular target composition, the claims are not limited by referring to a composition of a coating intended to be formed in the apparatus. Face teaches a target containing BaO and CaO, which are low work function materials, and thus makes obvious the use of such a target in the apparatus of Russo, even though Face does not teach forming low work function coatings.

Mehrotra discloses barium metal oxide coatings deposited by laser ablation, (col. 3, lines 30-51), which is recited in applicants' claim 26. It is well known in the laser

Art Unit: 1763

ablation art that a target must contain the material that is deposited. Therefore, it would have been obvious to use a target containing the barium metal oxide materials which correspond to the coatings desired by Mehrotra. It also would have been obvious to use such a target in the conventional laser ablation apparatus disclosed by Russo.

Koga teaches (col. 21, lines 12-17) the use of a laser ablation target containing silicon, diamond, DLC or ZrC, which are materials that are well known in the art to have a work function of approximately 1 eV. It would have been obvious to deposit the low work function coatings taught by Koga in a conventional laser ablation apparatus such as disclosed by Russo and Chrisey.

Gartner II teaches (col. 10, lines 42-55) the use of a laser ablation target which contains a material having a work function of approximately 1 eV. While Gartner II uses a CO₂ laser, the combined teachings of Gartner I and II makes clear that Gartner considered an eximer laser to be a desirable alternative to using a CO₂ laser for depositing a low work function coating. It would have been obvious to one skilled in the art to use an eximer laser as suggested by Gartner I to deposit the coatings taught by Gartner II.

Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references cited in the rejection of claim 19 above, taken in further view of Cotell, for the reasons stated in the previous office action.

Claims 20 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references cited in the rejection of claim 19 above, taken in further view of Moto, Cotell and Face, for the reasons stated in the previous office action.

Applicants have argued that too many references have been cited in the rejection. It is noted, however, that in *In re Gorman*, 18 USPQ2d 1885, it was held that the citation of a large number of references in a rejection does not weigh against obviousness. The criterion is not the number of references, but what they would have meant to a person of ordinary skill in the field of the invention. See also *Kansas Jack, Inc. v. Kuhn*, 219 USPQ 857.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

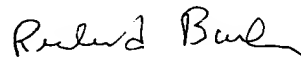
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (703) 308-1895. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

Art Unit: 1763

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Richard Bueker
Primary Examiner
Art Unit 1763

February 23, 2002